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ABSTRACT

Although foremost among the benefits of cooperative learning is improvement of student academic achievement, additional affective benefits may further convince teachers that the value added by cooperative learning is worth the effort. This study examined the effect of an 8-month cooperative learning intervention on children's friendship choices in a Singapore elementary school. Four primary 5 classes, comprising 151 students, participated in the cooperative learning and four primary 5 classes, comprising 164 students, did not. All students were 11 years old. Between 76 and 81 percent of the students were Chinese, and the other ethnic groups represented were Indian, Eurasian, and Malay. Data were collected through sociometric surveys conducted before and after cooperative learning was used in social studies classes. The findings indicated that after 8 months of learning in cooperative groups, children in the experimental groups showed significant gains in percentage of cross-race choices of friends. Target diagrams of the sociometry survey indicated, however, that children still showed a distinct tendency to select friends among the same race. Also, getting pupils to work collaboratively in heterogeneous groups did not seem to produce gains in acceptance of low status children. Inherent in groupwork are problems of status and personality, and the teacher plays an important role in integrated rejected and neglected children. (Contains 18 references.) (KB)

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The Effects of Cooperative Learning on the Cross-ethnic Friendship Choices of Children[1]

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Abstract

This paper discusses the findings of a study of school implementation of cooperative learning and its effect on the children's friendship choices. It also briefly discusses the effect upon low status children. Data collection was through sociometric surveys conducted before and after cooperative learning was used in their social studies classes. After eight months of learning in cooperative groups, the experimental groups showed significant gains in percentage of cross-race choices of friends. Target diagrams of the sociometric survey however indicate that children still show a distinct tendency to name friends among the same race. Getting pupils to work collaboratively in heterogeneous groups did not seem to produce gains in acceptance of low status children. Inherent in groupwork are problems of status and personality and the teacher plays an important role in integrating rejected and neglected children.

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Introduction

Foremost among the benefits attributed to cooperative learning are the improvement of student academic achievement, promotion of higher-level thinking and more positive interpersonal and inter-group relations among students. In our efforts to encourage more teachers in Singapore to adopt the cooperative learning approach, we have researched the academic gains, which are discussed in a separate paper. However, the "value-added" by cooperative learning may seem too modest to convince teachers that cooperative learning is worth the effort. This is because examination achievement can still be obtained through direct whole-class instruction.

Our interest in cooperative learning began with our belief in its affective benefits for students. We feel that cooperative learning makes learning more enjoyable for children. We believe too that children will gain in social skills, attitudes and ability to cultivate interpersonal relationships, including getting along with others who are different from them ethnically, culturally and socially. The key question this paper will examine is whether cooperative learning positively affects pupil-pupil relationships, particularly their cross-group interactions. This aspect of school life is of particular interest to us, as our society is one which is racially and culturally diverse.

The population of Singapore has Chinese as its majority ethnic group (75%), who are in turn made up of several dialect groups eg Fuchian, Teochew and Cantonese. The division of dialect groups has become less important through the use of Mandarin as the unifying language within the community. Not only do the Chinese dominate in number, they constitute the largest and most powerful community in commerce, the professions and administrative service. The minority ethnic groups are Malays (8%), Indians (5%) and Eurasians.

Since gaining independence, the country's social policy has been concerned with developing national cohesion and racial / religious tolerance. The education system supports this through three important principles - meritocracy, multi-racialism and equal opportunity. All schools are ethnically mixed and opportunities to move to higher levels based on academic merit. The common medium of instruction in all schools is English,

which is taught from Primary 1 when the child first starts school. In addition, national education in school aims to inculcate cohesive citizenship values, such as "an instinct for survival and confidence in the country". One such citizenship education goal at the primary school level is "inculcating in the children correct values and attitudes and a sense of bonding among pupils of different races and abilities" and "pride in Singapore." (MOE, 1997)

That ability and willingness to relate to fellow students of different races is valued is reflected in the following debate that occurred not too long ago in Parliament. Some schools in Singapore, through their curriculum offering of the mother tongue (Chinese language) at "higher level", attract students of only one ethnic group. This has raised some questions concerning how such "ethnically segregated" schools may provide students with the opportunities to interact with the minority groups. Quote:

> *"The structure of the school system now is such that it is possible for bright (Chinese) students not to really mix, on a daily basis, in school with students from the minority communities. They could go through twelve years of formal education like that (in Special Assistance Plan schools)... By the time they get to full-time national service, their views would have been relatively formed... They are going to be the policy formulators of the future - the men and women who are going to make this place tick. What would be their understanding of multiracialism if they did not have an adequate opportunity to mix on a daily basis, as students, with members of the other races?... Whatever we say, I think it is undeniable that their empathy, their understanding of the minority communities would be less than that of their predecessors who grew up in schools with members of the other races."* - (a Member of Parliament)

In the Deputy Prime Minister's response, multiracialism did not have to "homogenise the society" as it was necessary too, to preserve the unique cultures of each community and draw upon the existing ethnic and cultural diversity as a source of strength :

"We are trying to maintain in a transmuted form part of what was good in the previous generation... Diversity is a major factor for our national survival. So, what we are trying to do is to retain some of the strengths of these different ethnic groups and these cultural traditions, while at the same time building a Singaporean identity... So, it is not a society which is becoming more and more segregated. It is a society which is actually becoming more and more unified but, yet, in the unity we want to preserve some of the strengths." – BG Lee H.L.

Within this framework, developing sensitivities and understanding between different racial, religious and other groups may take greater importance.

Theory and Research

The literature on cooperative learning refers to two social effects that are relevant to our discussion. The first is that cooperative learning methods provide *social support* to children in the classroom. This makes the approach especially attractive, as schools have been swept into the current of rising competition and individual excellence. Indeed, as academic demands on students increase, social support has to be strengthened and structured in classrooms (Johnson & Johnson, 1988).

The second effect relates to the *social development* of the child. Social development is dependent upon the child's experiences of acceptance, among other things. A child who has experienced peer acceptance in school will have a better chance of developing a high esteem, self-acceptance and confidence (Cowie, 1994). The cooperative learning approach provides instructional methods that promote "prosocial orientation, interpersonal attraction among heterogeneous individuals, ability to take the affective perspective of others and altruism" (Johnson, Johnson & Maruyama, 1983).

Group formation

Cooperative learning uses heterogeneity as a principle of group formation. Students are placed in learning groups with others of different ethnic group, gender and

ability. The purpose is for them to engage in "cooperative interaction" with their peers, some who will no doubt be *unlike* them in culture and achievement. The desired end is that students develop the ability to work with persons who are different, and this would require finding some common ground and learning to handle complexities in interpersonal interaction.

When in heterogeneous groups, the students will learn through face-to-face interaction, positive interdependence and use social skills. Cooperative learning encourages positive peer interaction. The learning tasks require sharing by group members to accomplish common goals. Rewards may be based on individual performance to foster accountability for individual learning, but may include "group effort" as a condition.

Ethnicity, friendship and cooperative learning

Studies on ethnicity and friendship show that children tend to interact within "own-race groups". Ethnic polarization is more clearly seen among ethnic majority than minority children, in girls rather than boys. It also becomes more pronounced as the age of the child rises (most pronounced at ages 12-14 years) (Sagar, et al. 1983). Zieglar (1981) coined the term "ethnic encapsulation" attributing it to "ethnicity being an important identifier of self and others". Hence, people tend to choose friends who are of the same race.

Schofield's (1977, 1983) studies observed boys and girls aged 13 – 14 years in unsupervised settings - the school cafeteria, classrooms. These studies found that the children had more interactions with peers who were of their race than others. Their cross-race interactions were more likely to be task-oriented whilst within-race interactions had a more social orientation. The boys made more cross-race interactions than girls.

In a study by Ng & Lee (1994), the observation was that primary school children had a tendency to choose friends of the same race (not necessarily from the same class). However, following cooperative learning in one primary 5 class, the proportion of

students in that class who named "partners for recess" who were of a different race increased.

UK research led by Cowie (1994) in multi-ethnic classrooms found that there were children who encountered difficulties in social relationships at school, and incidence of racial prejudice. "Similarity" was identified as a strong feature in friendship choice. They made a distinction between *peer acceptance* and *friendship*. While acceptance reflected a surface liking or dislike of one's peers, friendship denoted a deeper relationship characterised by "openness" and "sharing".

While the tendency to interact within an ethnic group is present, it may not be entirely due to prejudice. Avoiding contact may be the consequence of cultural and value differences. Unless students are provided with direct experiences with cultural diversity in and outside school, stereotypes are formed and persist (Putnam, 1997).

The Johnsons and other advocates of cooperative learning argue that social acceptance may be promoted by the instructional approach. Cooperative learning experiences enhance acceptance; competitive and individualistic learning experiences may not. The attributes of cooperative learning promote social acceptance : (1) promotive interaction (2) feelings of psychological acceptance (3) accurate perspective-taking (4) differentiated, dynamic and realistic views of collaborators and oneself (5) psychological success (6) self acceptance and self-esteem (7) liking for others (8) expectations of rewarding and enjoyable future interactions with collaborators (Johnson & Johnson, 1984).

Sociometric methods ask students to list their best friends at the beginning of the study and again at the end. The friendship choices that children make outside their own ethnic groups indicate the extent of inter-group contact. Some cooperative learning techniques - STAD, TGT, Jigsaw, Learning Together and group investigation - have been found to affect inter-group relations in a positive way. Slavin's (1979) study compared the lists of friends of students after cooperative learning compared to control students. The experimental students named on average two to four friends of a different race from their own (37.9% of their friendship choices) whereas the control students listed on average less than one friend of a different race (9.8% of their friendship

choices). Some studies that followed-up on students found that several months after cooperative learning, the students still named significantly more friends outside their own ethnic groups than did the control classes. A review of 19 experimental studies in desegregated elementary and secondary schools in the US also concluded that cooperative learning had positive effects on inter-group relations, and on the achievement of minority and majority students. (Slavin, 1985)

Studies in Israel by Sharan (1990) found that "the traditional whole-class method exerted a negative effect on pupils' ethnic attitudes". Zieglar's (1981) conclusion was that "the greater the opportunity for inter-ethnic contact, the less the prejudice and the more frequent the development of cross-ethnic acceptance and friendship".

The Study

The study involved the implementation of cooperative learning in real classroom contexts and measurement of its effects on achievement, attitudes and cross-ethnic friendships. The school is in a middle/lower income residential estate. Cooperative learning was used in four out of the eight primary five classes in that school. The experimental group size was 151 and the control group had 164 students, all aged eleven years. The experimental classes included one EM1 (high achieving), two EM2 (middle) and one EM2/EM3 (middle/low) classes representing a range of abilities. All the classes were ethnically mixed and the cooperative learning intervention lasted 8 months.

The outcomes we observed were classroom climate, student achievement, attitudes toward the subject and friendship choices. We also interviewed the teachers and groups of pupils to collect their views on cooperative learning. The friendship choices were examined as a spin-off of cooperative learning and no deliberate measure was built into the study to influence pupil-pupil relationships.

Table 11: The ethnic profile of the experimental & control classes

	Experimental classes (4 classes)		Control classes (4 classes)	
	Total no of students	Percentage	Total no of students	Percentage
Chinese	122	81 %	124	76 %
Indian	24	16 %	22	13.5 %
Eurasian	5	3 %	17	10.5 %
Malay	-	0 %	1	-
Total	151	100 %	163	100 %

The researchers began with the hypothesis that in bringing together children of different races and abilities, cooperative learning would lead to new friendships being formed, including minorities and low status children. The hypotheses were thus:

(a) Cooperative learning will promote cross-ethnic interaction and friendships among the children.
(b) Cooperative learning will help low status pupils be better accepted in the class.

Data collection included sociometric survey at two points – before cooperative learning and after cooperative learning (eight months later). The child was asked to list and say why they named the three persons they wanted to (1) sit with (2) have as a best friend (3) have as project partner. The first survey established the baseline data of friendships at year-start, and the second survey established the situation at year-end.

The main elements of cooperative groupwork used by the teachers were instruction in social skills, assignment of group roles, CL structures and group processing. The control classes had no exposure to cooperative learning. Instruction in the control classes was mainly direct instruction. This was confirmed through triangulation interviews with groups of control students.

The Findings

At year-start, two thirds of the sociometric choices of the entire cohort were "within-race". For reasons beyond the control of the researchers, the experimental group started with a lower proportion of cross-race choices (34%) compared to the control group (45%) - see Table 2. This was a poor start for the experimental group, which later surprised us by "catching up" with the control group in the post-test. This was brought about by a rise in cross-race choices among the experimental classes, whereas the control classes remained stable. In the control classes, a declining trend was evident in some cross-race choices. Table 5 gives the significance levels of the changes observed.

Table 2 : Students' Choice of Who to Sit with in Class

EXPERIMENTAL CLASSES	Pre-test		Post-test	
Students who named at least one person of a different race	50	34 %	64	42 %
Students who did not name anyone of a different race	97	66 %	87	58 %
Total	147	100 %	151	100 %
CONTROL CLASSES	Pre-test		Post-test	
Students who named at least one person of a different race	73	45 %	72	44 %
Students who did not name anyone of a different race	90	55 %	91	56 %
Total	163	100 %	163	100 %

Table 3 : Students' Choice of Project Partners

EXPERIMENTAL CLASSES	Pre-test		Post-test	
Students who named at least one person of different race	49	33 %	62	42 %
Students who did not name anyone of a different race	98	67 %	87	58 %
Total	147	100 %	149	100 %
CONTROL CLASSES	Pre-test		Post-test	
Students who named at least one person of different race	77	47.5 %	75	46 %
Students who did not name anyone of a different race	85	52.5 %	88	54 %
Total	162	100 %	163	100 %

Table 4 : Students' Choice of Best Friend

EXPERIMENTAL CLASSES	Pre-test		Post-test	
Students who named at least one person of different race	45	31 %	62	41 %
Students who did not name anyone of a different race	102	69 %	89	59 %
Total	147	100 %	151	100 %
CONTROL CLASSES	Pre-test		Post-test	
Students who named at least Students of different race	65	40 %	67	41 %
Pupils who did not name anyone of a different race	98	60 %	96	59 %
Total	163	100 %	163	100 %

Table 5 : Pre- and Post-test changes in Cross-ethnic Friendship Choices

Sociometric choice	Experimental classes		Control classes	
	z scores	*p-value*	*z scores*	*p-value*
Students choosing :				
(a) friend of different race to sit with	2.179 *	0.014	-0.154	0.561
(b) project partner of different race	2.150 *	0.016	-0.383	0.649
(a) best friend of different race	2.800 *	0.003	0.313	0.374

* significant at the 0.05 level

Analysis by target diagrams

The sociometric patterns of each class were analysed using target diagrams. These diagrams map out visually the status of individuals in the class (the sociometric status of the children given by their position in the concentric circles), mutual choices (connecting lines) and racial divide (right sphere for majority, left sphere for minorities).

Centre ring	- Stars	- chosen by 9 > students
Second ring	- Above average	- chosen by 5-8 students
Third ring	- Average pupils	- chosen by 2-4 students
Outermost ring	- Neglectees	- chosen by 1 student
Outside	- Isolates	- not chosen by anyone

A series of target diagrams developed from the sociometric surveys (only two figures are represented in this paper) showed the same pattern in the experimental and control classes, in which the children chose friends within the same race.

The writers had expected dramatic improvement in post-test cross-ethnic choices. A statistically significant increase was found in the experimental group. However, it could be seen in the target diagrams that same-race bonding remained a strong feature of the children's friendship choices.

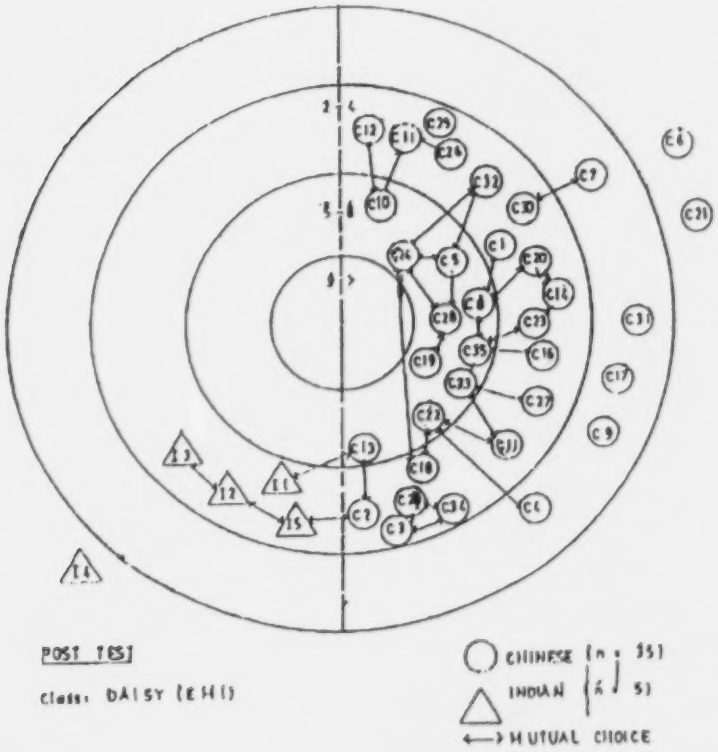
Hence, cooperative learning helps promote cross-ethnic contact and some children eventually do cultivate cross-race friendships. In contrast, students who are not given adequate opportunities for cross-race interaction do not, over time, cultivate cross-race friendships. Teachers do have to provide the encouragement for collaborative interaction with classmates of different race.

With regard to hypothesis 2, the findings were less encouraging. Whereas the researchers had expected cooperative learning to help the low status students, this did not happen. There was no fall in neglectees and isolates in the post-test data of the experimental classes. Instead, the attractive or popular students became more popular over the year. The low status children remained in their position as isolates. It seemed that low status was related to personal or academic factors rather than race.

Figure 1 - Target diagram

No of times a Student was Chosen (to sit with)

Class composition : Chinese (n=35), Indian (n=5)	
Pre-test	Post-test
Stars = 0 Above-average = 7 Average = 26 Neglectees = 5 Isolates = 2	*Stars = 0* Above-average = 10 Average = 22 Neglectees = 5 Isolates = 3
Total = 40	Total = 40



The target diagram is based on post-test sociometric data of a high ability class:

- Most of the mutual friendships in the class were within the same ethnic group.
- The minority students (Indians) were linked by a chain relationship (I-3, I-2, I-5).
- Only two pairs of mutual friendships across ethnic lines - (C-2 & I-5); (C13 & I-1)
- Several cliques were evident among the majority (Chinese) students.
- Between pre- and post-test, isolated students increased from 2 to 3 - (I-4; C-6 & C21).

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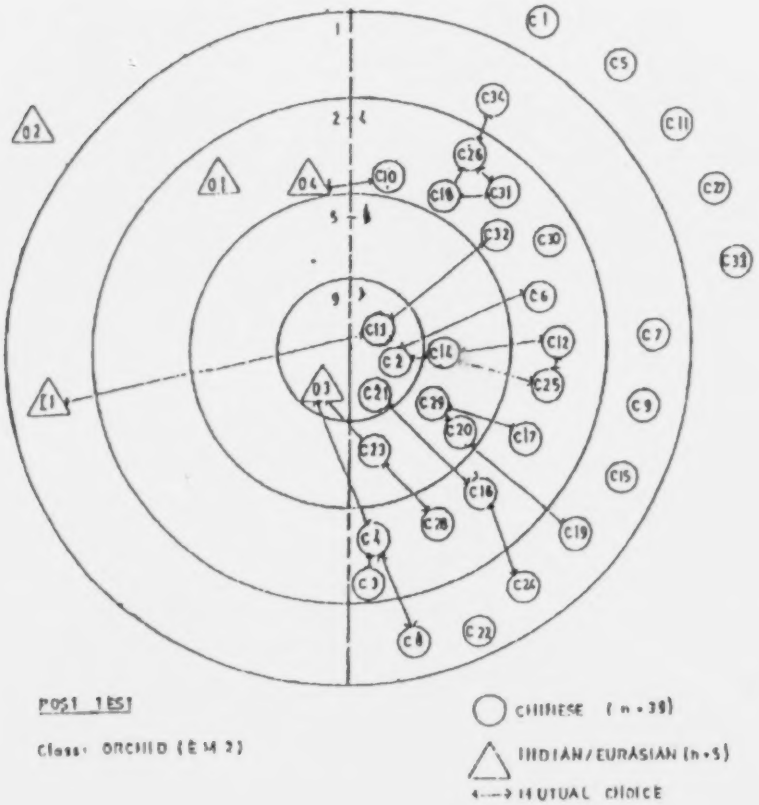
Figure 2 - Target diagram

Number of times a Students was chosen (as project partner)

Class composition: Chinese (n=34), Eurasian (n=4), Indian (n=1)	
Pre-test	Post-test
Stars = 1 Above-average = 6 Average = 17 Neglectees = 9 Isolates = 6	Stars = 3 Above-average = 5 Average = 16 Neglectees = 9 Isolates = 6
Total = 39	Total = 39



The target diagram is based on post-test sociometric data of a medium-ability class:

- There were 4 stars, of which one was a minority (Eurasian)
- Four pairs of across-group mutual choices (O-3 &C-4; O-3 & C-23; O-4 & C-10, I-1 & C-13)
- This class had a relatively high number of isolates, even after cooperative learning

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Discussion

The findings confirm that natural friendships occur predominantly within same-race groups and schools have a role in integrating children of different backgrounds, cultures and abilities. Teachers who desire such social outcomes for their children should consider using cooperative learning to provide the setting for learning about diversity, mutual respect and acceptance. Traditional instruction in classrooms may limit peer interaction and despite having children of different ethnic groups in the class, there is little interaction that will prompt children to cross boundaries.

Cooperative learning techniques are designed to encourage pupil-pupil interaction. Students of different backgrounds are brought into direct contact and interact on equal status terms. Allport's "contact hypothesis" (1954) advances the theory that attitudes toward a lower status social category will be improved only where the contact situation requires mutually interdependent relations. Cooperative learning structures equal-status interaction such that every team member contributes some part of the group product. The necessary condition is interdependence – we swim or sink together. Equal status supports the notion that no individual dominates or free-rides in the task. So, by working together to achieve common goals and sharing the rewards, students try to get along and learn to relate to each other.

In this study, significant gains were seen in cross-race friendships in the experimental group. There are important implications. One can then expect that over time, cooperative learning will improve or at least develop more favourable cross-race acceptance. Taken in the context of citizenship education, cooperative learning offers to teachers concrete techniques for nurturing values and skills for multi-ethnic populations.

It is important that our teachers understand the philosophy of cooperative learning and its theoretical underpinnings. Pre-occupation with practical concerns may lead to a situation where cooperative learning techniques are used primarily to inject variety into teaching. Cohen's (1994) work on status problems in groupwork is also relevant to this discussion. She argued that *task arrangements* have a direct effect on group participation. Suppose that a group task is divided up with each person having a different role (e.g. artist, scribe, presenter and so forth), the result may be each person

quietly working on his or her own task and there is little true interaction at the group level.

Our findings showed that it was difficult achieving improvement in status of some students (*isolates and rejectees*). We would have expected cooperative learning to enhance the acceptance of these children, but concede that it probably requires more direct intervention and a longer time than was available in this research. Intervention may require the particular competence of low status students to be recognised by their peers. The teacher will have to be observant, look out for instances where a low status students does something well and publicly commend the student for what he or she is able to do well.

Cooperative learning calls for attention to be paid to status conditions of individuals in the group, and direct instruction of values of self respect and mutual help. This is done through social skills instruction and group processing, two other key elements of cooperative learning. In our observations, though, many teachers do not see the importance of affective learning. We noted too that when teachers assigned roles or encouraged practice of social skills during groupwork, they tended to emphasise group functioning skills (quiet voices, taking turns) rather than group interaction skills (giving encouragement, helping others). After group processing, there was usually little serious attempt at follow-up.

Closing Remarks

Whether or not cooperative learning will be used by our teachers has to be considered in the context of education policy in Singapore. The new initiatives in improving instruction in Singapore schools require more active student engagement, independent thinking and inquiry. The desired outcomes of education include personal and societal goals - that our children should learn to "share and put others first" and "be able to build friendships with others". We hope that cooperative learning will be viewed by policy makers administrators with greater seriousness. *"There are no winners or losers. We are all in this together. Either we all win - or we all lose."* – Colin Marsh

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A Matrix showing Sociometric Choices

Choice of Best Friend					Choice of Project Partner				
EM1 (Daisy)					EM2 (Orchid)				
	Pre-test		Post-test			Pre-test		Post-test	
Pupil Ref	Chose within-race	Chose across-race	Chose within-race	Chose across-race	Pupil Ref	Chose within race	Chose across race	Chose within race	Chose across race
I-1		X		X	O-1		X		XX
I-2		X		X	O-2		X		XX
I-3		X		X	O-3		X		XX
I-4		X		X	O-4		X		XX
I-5		X		X	I-1		X		XX
C-1	X		X		C-1		X		XX
C-2	X			X	C-2	X			XX
C-3	X		X		C-3	X		X	
C-4	X		X		C-4		X	X	
C-5	X		X		C-5	X			XX
C-6	X		X		C-6	X			XX
C-7		X		X	C-7	X			XX
C-8		X	X		C-8		X		XX
C-9	X		X		C-9		X		XX
C-10	X		X		C-10	X		X	
C-11	X		X		C-11		X		XX
C-12	X		X		C-12	X		X	
C-13	X		X		C-13		X		XX
C-14	X		X		C-14	X		X	
C-15	X		X		C-15	X		X	
C-16	X		X		C-16	X		X	
C-17	X		X		C-17	X		X	
C-18		X	X		C-18	X		X	
C-19	X		X		C-19	X		X	
C-20	X		X		C-20	X			XX
C-21	X		X		C-21	X		X	
C-22	X		X		C-22		X		XX
C-23	X		X		C-23	X		X	
C-24	X		X		C-24	X		X	
C-25		X	X		C-25	X		X	
C-26	X			X	C-26	X		X	
C-27	X		X		C-27		X		XX
C-28		X	X		C-28	X		X	
C-29	X		X		C-29	X		X	
C-30	X		X		C-30	X			XX
C-31	X		X		C-31	X		X	
C-32	X		X		C-32	X		X	
C-33	X		X		C-33	X		X	
C-34	X		X		C-34		X		XX
C-35	X		X						